

CLAIMS

What is claimed is:

1. (Currently amended) A manual electro-hydraulic selective depth control system for establishing a set position of a device above the ground as the device is moved across a surface, the selective depth control system comprising:
 - a. a toggle input device for specifying a plurality of position settings;
 - b. a device position sensor for determining a measured device position; and
 - c. a hydraulic position control system having a programmable ground zero position and a programmable maximum depth position for the device, wherein the hydraulic position control system maintains ~~the current~~ a set position corresponding to the measured device position within a specified position window around ~~a~~ the set position programmed relative to the ground-zero and maximum-depth position;
 - d. wherein the toggle input device comprises:
 - e. a working position that places the set position at a programmed position;
 - f. a shallow position that places the set position at a minimum deployed depth;
 - g. a zero position that places the ~~remote solenoid~~ hydraulic position control system in a permanent de-energized mode.
2. (Original) The manual electro-hydraulic selective depth control system according to claim 1 wherein the toggle input device further comprises a widow size control input for specifying a size for the position window used by the hydraulic control system.
3. (Original) The manual electro-hydraulic selective depth control system according to claim 1, wherein the device position sensor is a potentiometer-based system.

4. (Original) The manual electro-hydraulic selective depth control system according to claim 1, wherein the device position sensor is an ultra-sonic transducer-based system.

5. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 1, wherein the toggle input device further comprises:

- a. a set switch for setting the programmed position used for use when the toggle input device is toggled between the device's in its current position to- and a new position of the device; and
- b. an up/down rocker switch for adjusting the current position of the device.

6. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 5, wherein the shallow position deployed depth corresponds to a programmable position having a default position 1.5 inches deeper than the ground-zero position.

7. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 5, wherein the function of shallow position is slaved to the function of the working position in that a manual raise function raising of the hydraulic position control system power source will move the set position from the programmed working position automatically to the set position of the shallow position.

8. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 5, wherein the programmed working position corresponds to a programmable position having a default position 3.0 inches deeper than the ground-zero position.

9. (Original) The manual electro-hydraulic selective depth control system according to claim 1, wherein the manual electro-hydraulic selective depth control system further comprises a device position display unit comprising a numeric LED display element.

10. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 9, wherein the numeric LED display element shows depth in inches with a decimal point to show $1/10$ tenths of an inch.

11. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 1, wherein the hydraulic position control system further comprises a remote two-way, two position, normally open solenoid valve.

12. (Canceled)

13. (Currently amended) A manual electro-hydraulic selective depth control system for establishing a set position of a device above the ground as the device is moved across a surface, the selective depth control system having a hydraulic position control system enabling the slaving of a shallow position and a working position, comprising:

- a. an a first input device wherein the function of shallow position is not slaved to the function of the working position;
- b. an a second input device wherein the function of the working position is slaved to the function of the shallow position; and
- c. an a third input device wherein the function of the working position and the shallow position are not slaved.

14. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 13, wherein the function of shallow position is not slaved to the function of the working position thereby having its own programmable depth, and in that a manual raising raise function of the hydraulic position control system power source will move the set position from the shallow position to a full raise position.

15. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 13, wherein the function of the working shallow position is slaved to the function of the shallow working position in that a manual raising raise function of the hydraulic position control system power source will move the set position from the working shallow programmed position automatically to the set position of the working shallow position.

16. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 13, wherein the function of the working position and the shallow position are not slaved and a manual lowering raise function of the hydraulic position control system power source will move the set position from a full raise position to the working position and, bypassing the shallow position to a full raise position.

17. (Canceled)

18. (Currently amended) A manual electro-hydraulic selective depth control system for establishing a set position of a device above the ground as the device is moved across a surface, the selective depth control system having a hydraulic position control system, the selective depth control system comprising:

- a. a first hydraulic manifold wherein a counter-balance valve is coupled to a solenoid activated valve, and a pressure reducing and relieving valve, and check valve;
- b. a second hydraulic manifold wherein a counter-balance valve is coupled to a solenoid activated valve, and a check valve; and
- c. a third hydraulic manifold wherein a counter-balance valve is coupled to a solenoid activated valve.

19. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 18, wherein a the first hydraulic manifold further comprises: ~~includes a rebound valve having a plurality of hydraulic connections, the rebound valve comprising a counter balance valve coupled to a first solenoid activated valve, and a pressure reducing and relieving valve and a check valve; wherein,~~

- a. the solenoid activated valve is configured to cease delivery of hydraulic fluid to the hydraulic position control system;
- b. the counter balance valve is configured to prevent air ingestion, to act as a holding valve, and to act as a relief valve to act as a check valve for cylinder retraction, and to act as a relief valve against over pressurization at the master cylinder; and
- c. the pressure reducing and relieving valve is configured to provide an adjustable and controlled pressure to the hydraulic position control system in the rod side of the outer slave circuit to protect against effects of compression and decompression, to provide for ingest and exhaust of hydraulic oil in order to meet hydraulic fluid requirements caused by draft and draft relief forces, and to restrict the exhaust of hydraulic oil to dampen cylinder movement; and
- d. the check valve is configured to operate in conjunction with the counter balance valve pressure reducing and relieving valve to stabilize the positions of the hydraulic cylinders by keeping the cylinders under pressure.

20. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 18 wherein a the second hydraulic manifold further comprises: ~~includes a counter balance valve coupled to a first solenoid activated valve and a check valve; wherein,~~

- a. the solenoid activated valve is configured to cease delivery of hydraulic fluid to the hydraulic position control system;
- b. the counter balance valve is configured to prevent air ingestion, to act as a holding valve, and to act as a relief valve to act as a check valve for cylinder retraction, and to act as a relief valve against over pressurization at the master cylinder; and
- c. the check valve is configured to operate in conjunction with the counter balance valve pressure reducing and relieving valve to stabilize the positions of the hydraulic cylinders by keeping the cylinders under pressure.

21. (Currently amended) The manual electro-hydraulic selective depth control system according to claim 18 wherein a the third hydraulic manifold further comprises: ~~includes a counter-balance valve coupled to a first solenoid activated valve; wherein, the counter balance valve is configured to prevent air ingestion, to act as a check valve for cylinder retraction, and to act as a relief valve against over pressurization at the master cylinder.~~

- a. the solenoid activated valve is configured to cease delivery of hydraulic fluid to the hydraulic position control system; and
- b. the counter balance valve is configured to prevent air ingestion, to act as a holding valve, and to act as a relief valve to act as a check valve for cylinder retraction,

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (New) The manual electro-hydraulic selective depth control system according to claim 13 wherein only one of the first input device, second input device, and third input device are enabled at any given time.

26. (New) The manual electro-hydraulic selective depth control system according to claim 18 wherein only one of the first hydraulic manifold, second hydraulic manifold, and third hydraulic manifold are enabled at any given time.

27. (New) A manual electro-hydraulic selective depth control system for establishing a set position of a device above the ground as the device is moved across a surface, the selective depth control system having a hydraulic position control system enabling the slaving of a shallow position and a working position, comprising an input device that provides a signal to the hydraulic position control system for selectively enabling the slaving of the shallow position and the working position.

28. (New) The manual electro-hydraulic selective depth control system according to claim 27 wherein the input device provides a signal to the hydraulic position control system whereby the shallow position is not slaved to the working position.

29. (New) The manual electro-hydraulic selective depth control system according to claim 27 wherein the input device provides a signal to the hydraulic position control system whereby the shallow position is slaved to the working position.

30. (New) The manual electro-hydraulic selective depth control system according to claim 27 wherein the input device provides no signal to the hydraulic position control system.